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Manges

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(54) **NETWORK ARCHITECTURE FOR SYNCHRONIZED DISPLAY**

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H04W 12/06	(2009.01)
H04W 4/00	(2009.01)
H04W 76/02	(2009.01)
G06F 3/14	(2006.01)
H04W 64/00	(2009.01)
H04N 1/00	(2006.01)
H04W 84/18	(2009.01)
H04W 84/10	(2009.01)

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CPC ***H04W 4/02*** (2013.01); ***G06F 3/1454*** (2013.01); ***H04N 1/00*** (2013.01); ***H04W 4/008*** (2013.01); ***H04W 4/028*** (2013.01); ***H04W 12/06*** (2013.01); ***H04W 64/00*** (2013.01); ***H04W 76/023*** (2013.01); *H04W 84/10* (2013.01); *H04W 84/18* (2013.01)

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See application file for complete search history.

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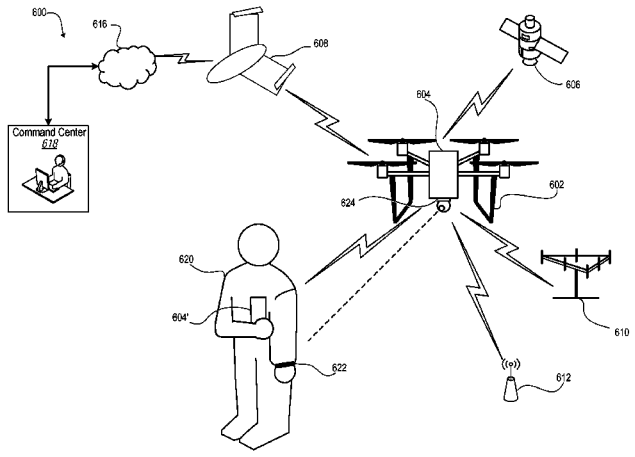
(74) *Attorney, Agent, or Firm* — Jenei LLC

(57) **ABSTRACT**

Systems and methods are provided that couple one or more devices to one or more presentation screens and to one or more servers via network connections. Various devices can be identified on a network and location data regarding each of the mobile devices can be delivered to the servers. Data can be displayed on a presentation screen based on mobile devices in its proximity, for example.

24 Claims, 8 Drawing Sheets



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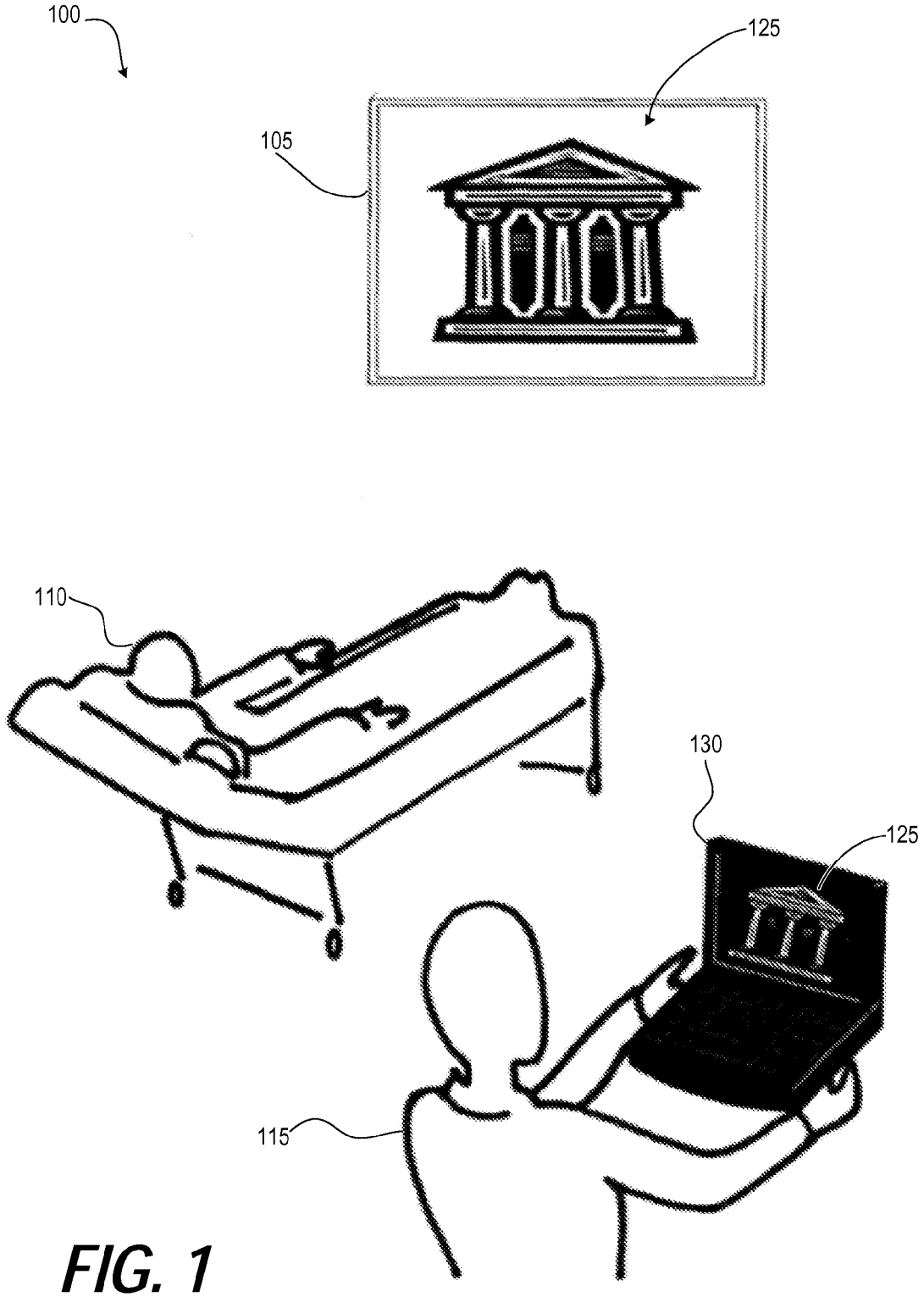
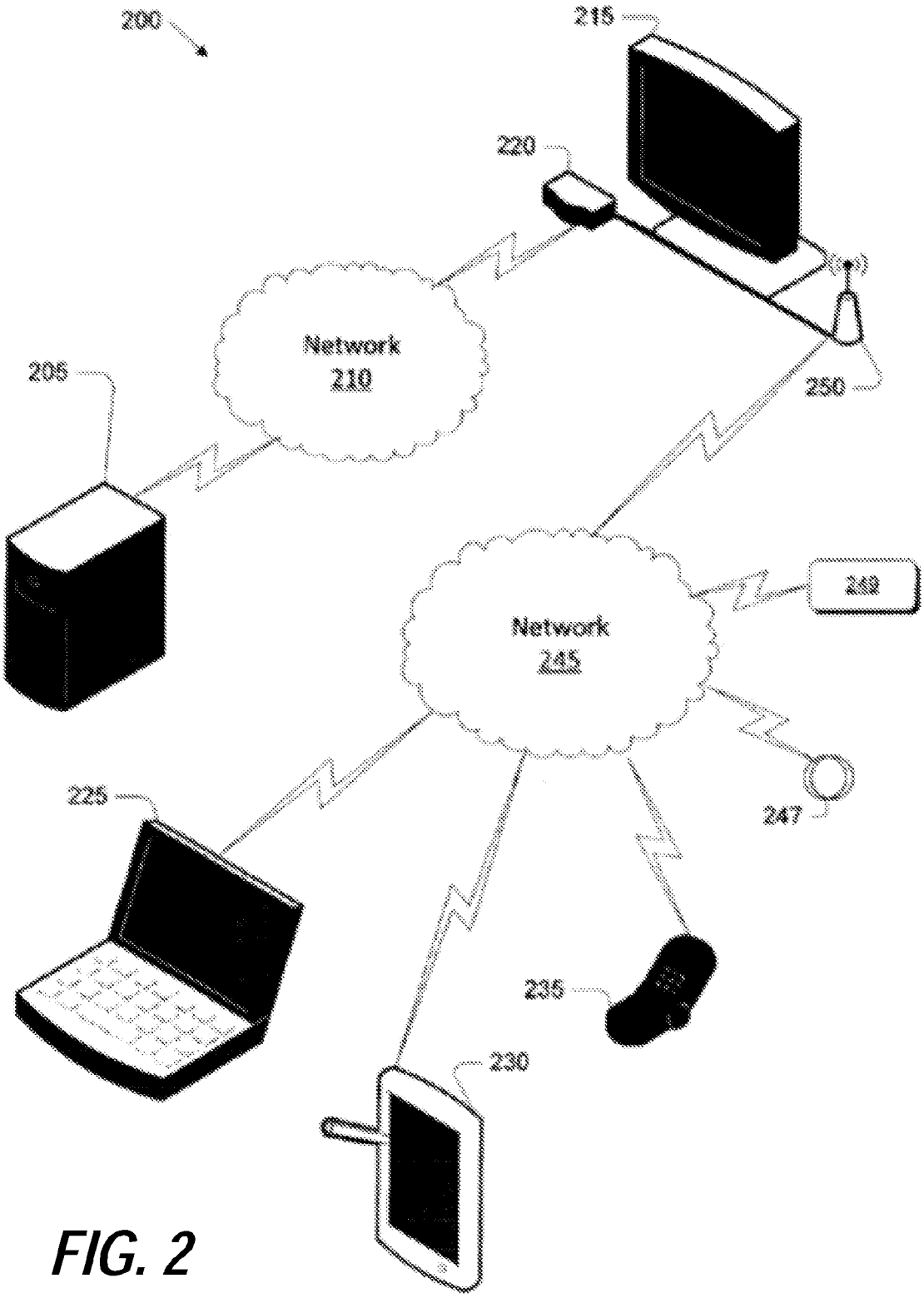


FIG. 1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215
220
Network
210
205
250
Network
245
249
247
225
235
230

FIG. 2

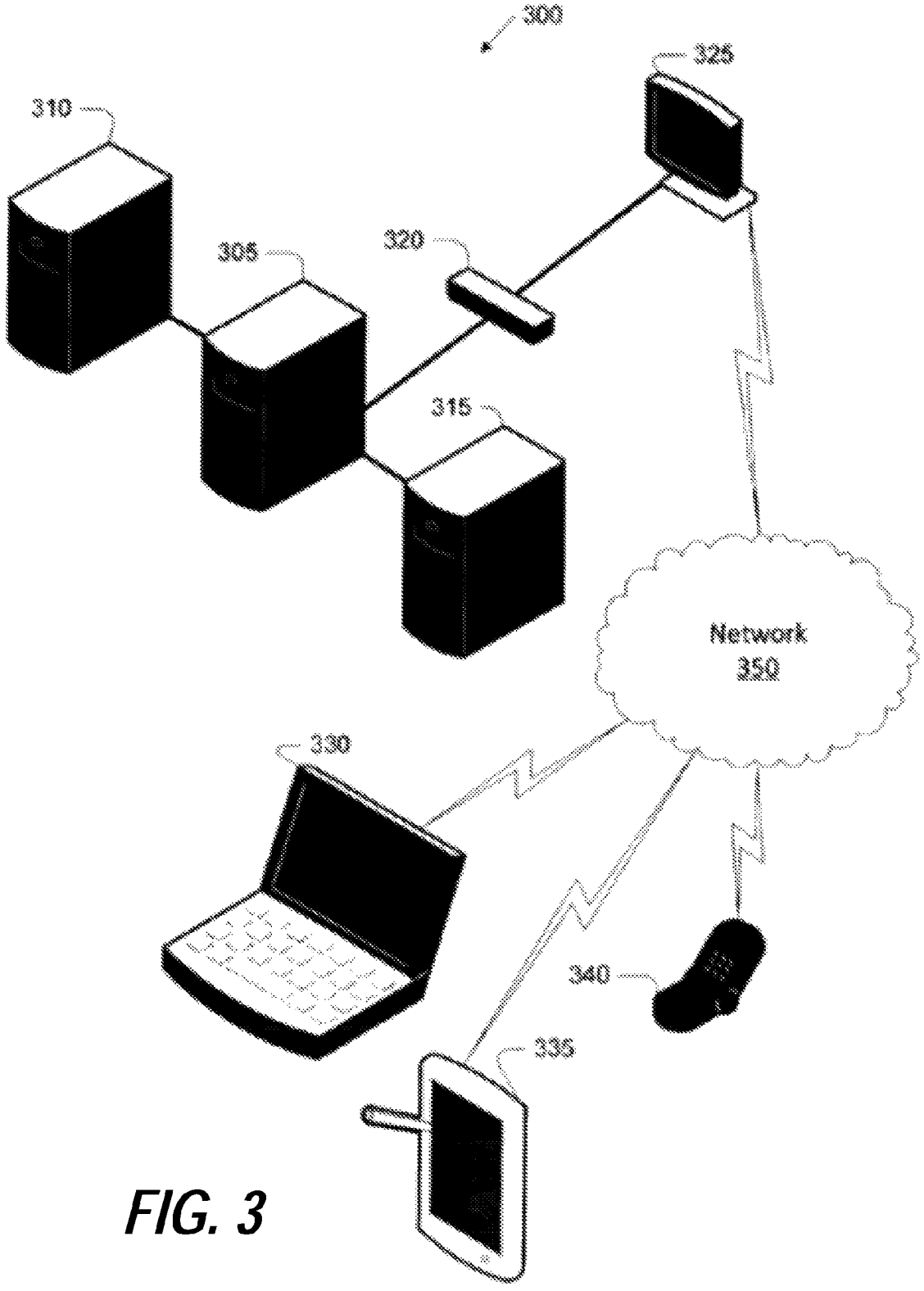
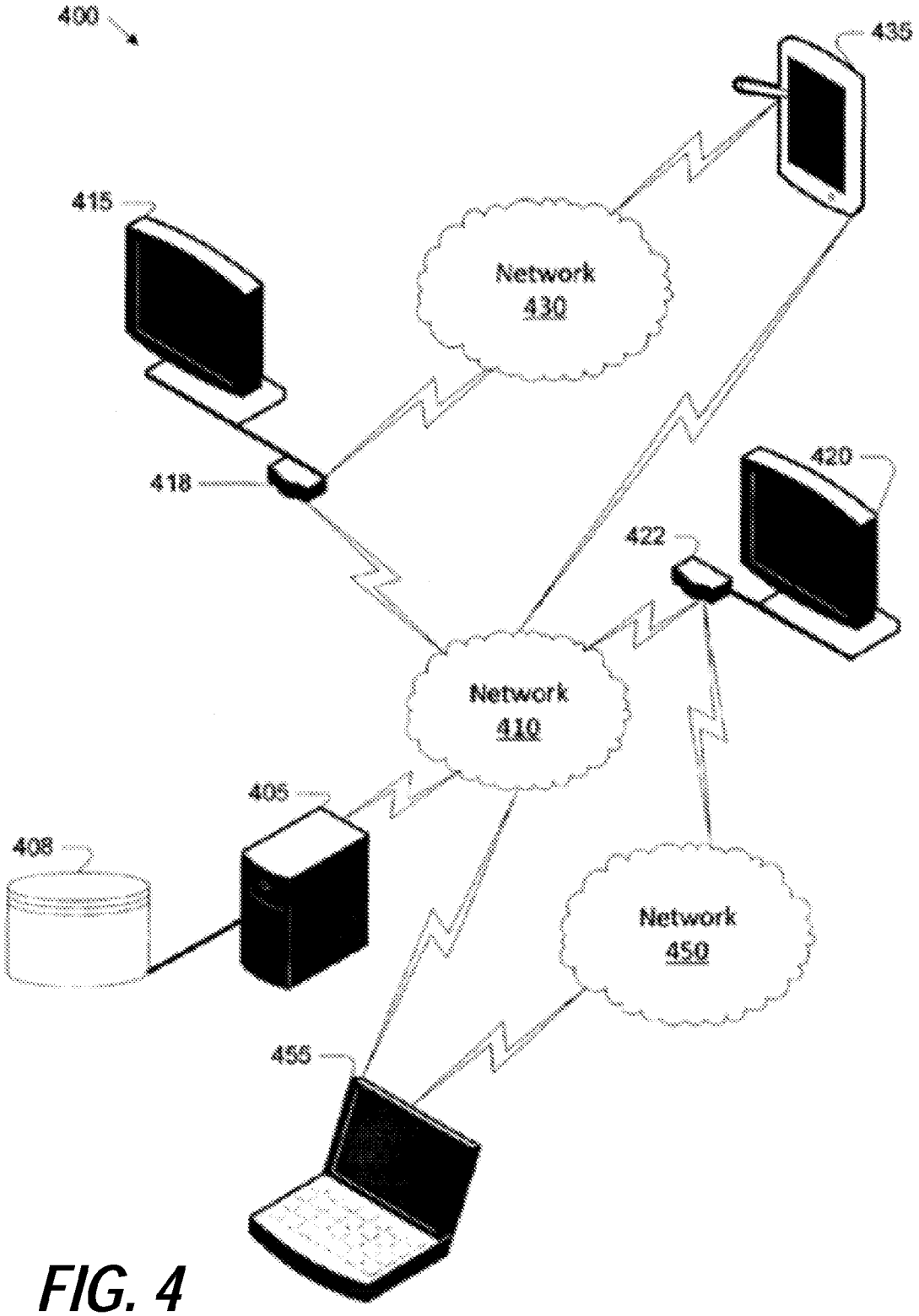


FIG. 3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435
415
Network
430
418
420
422
Network
410
405
408
Network
450
455

FIG. 4

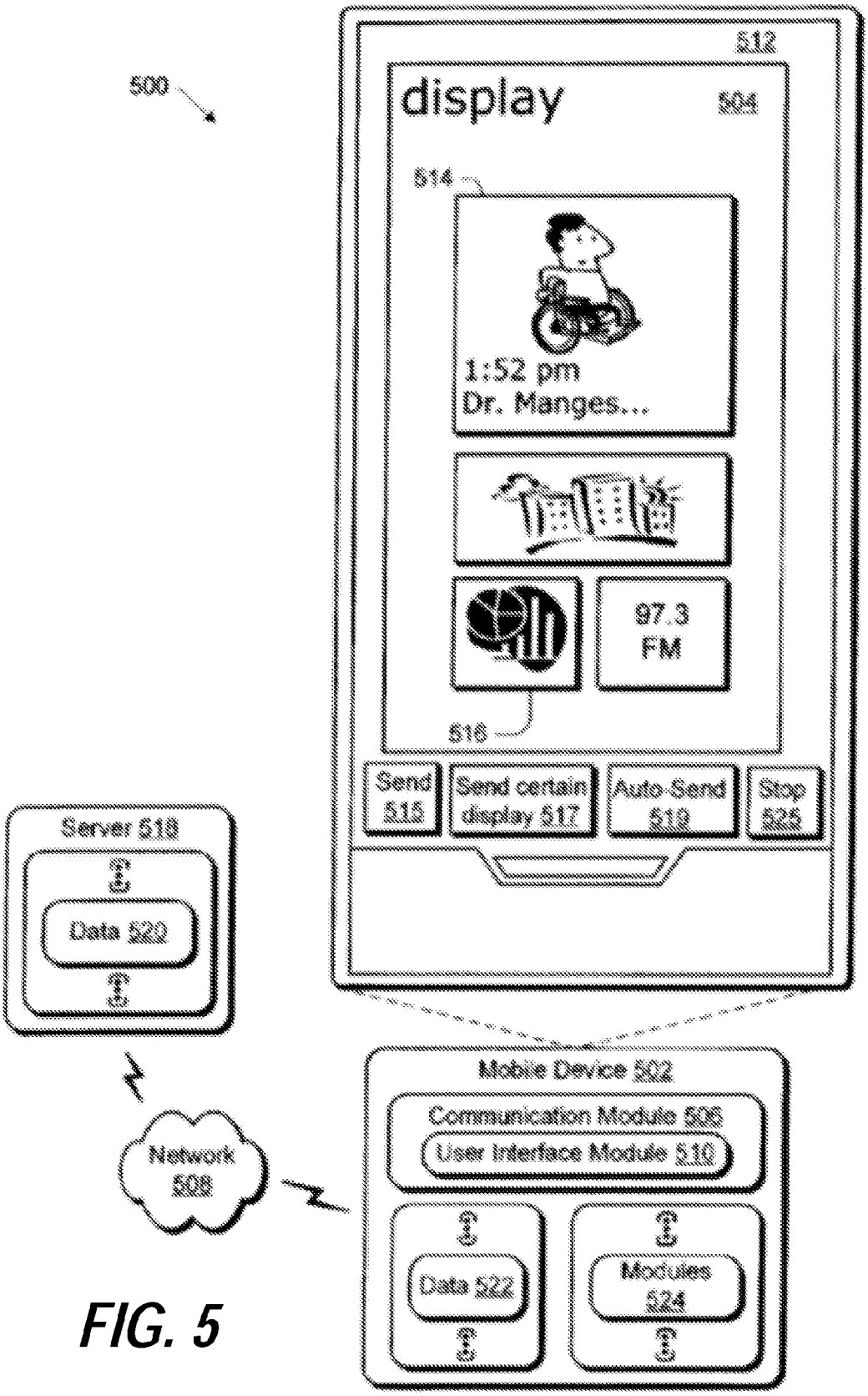
500
512
display
504
514
1:52 pm
Dr. Manges...
97.3
FM
516
Send
515
Send certain
display 517
Auto Send
519
Stop
525
Server 518
Data 520
Network
508
Mobile Device 502
Communication Module 506
User Interface Module 510
Data 522
Modules
524

FIG. 5

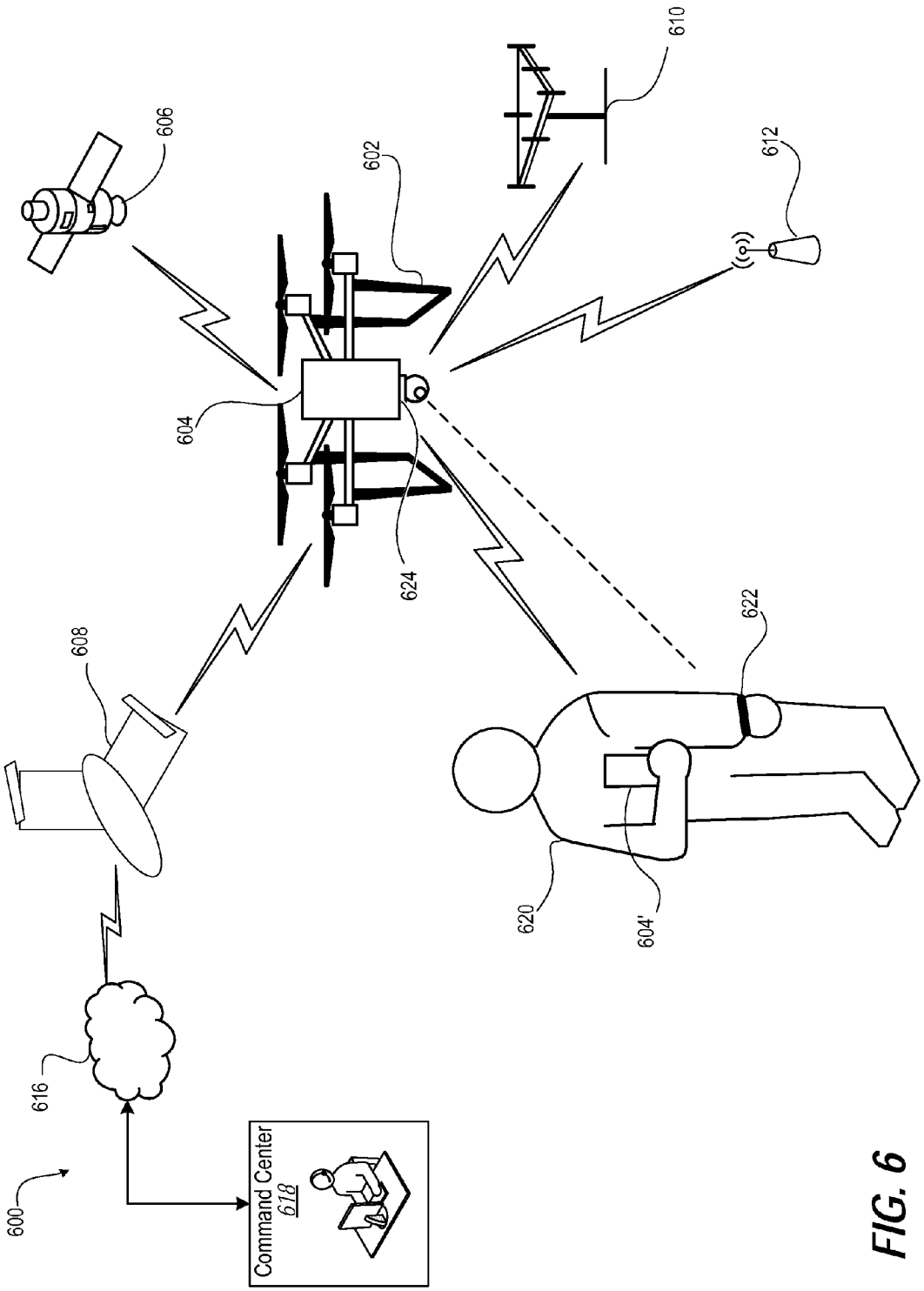
606
602
610
612
604
624
608
622
620
604'
616
600
Command Center
618

FIG. 6

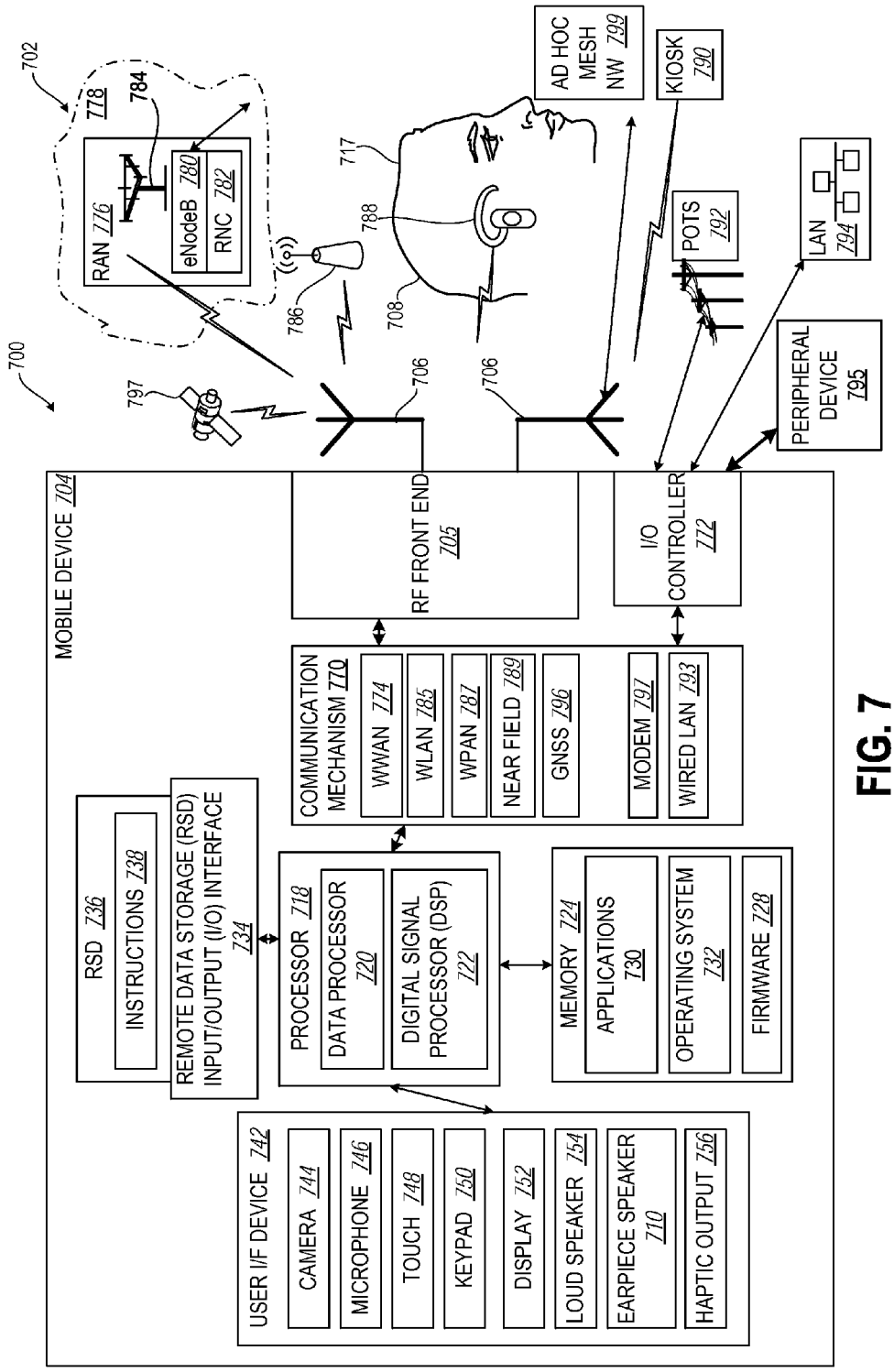
700
702
778
784
RAN 776
eNodeB 780
RNC 782
786
788
708
717
797
706
706
AD HOC MESH NW 799
KIOSK 790
POTS 792
LAN 794
PERIPHERAL DEVICE 795
MOBILE DEVICE 704
RF FRONT END 705
I/O CONTROLLER 772
COMMUNICATION MECHANISM 770
WWAN 774
WLAN 785
WPAN 787
NEAR FIELD 789
GNSS 796
MODEM 797
WIRED LAN 793
RSD 736
INSTRUCTIONS 738
REMOTE DATA STORAGE (RSD) INPUT/OUTPUT (I/O) INTERFACE 734
PROCESSOR 718
DATA PROCESSOR 720
DIGITAL SIGNAL PROCESSOR (DSP) 722
MEMORY 724
APPLICATIONS 730
OPERATING SYSTEM 732
FIRMWARE 728
USER I/F DEVICE 742
CAMERA 744
MICROPHONE 746
TOUCH 748
KEYPAD 750
DISPLAY 752
LOUD SPEAKER 754
EARPIECE SPEAKER 710
HAPTIC OUTPUT 756

FIG. 7

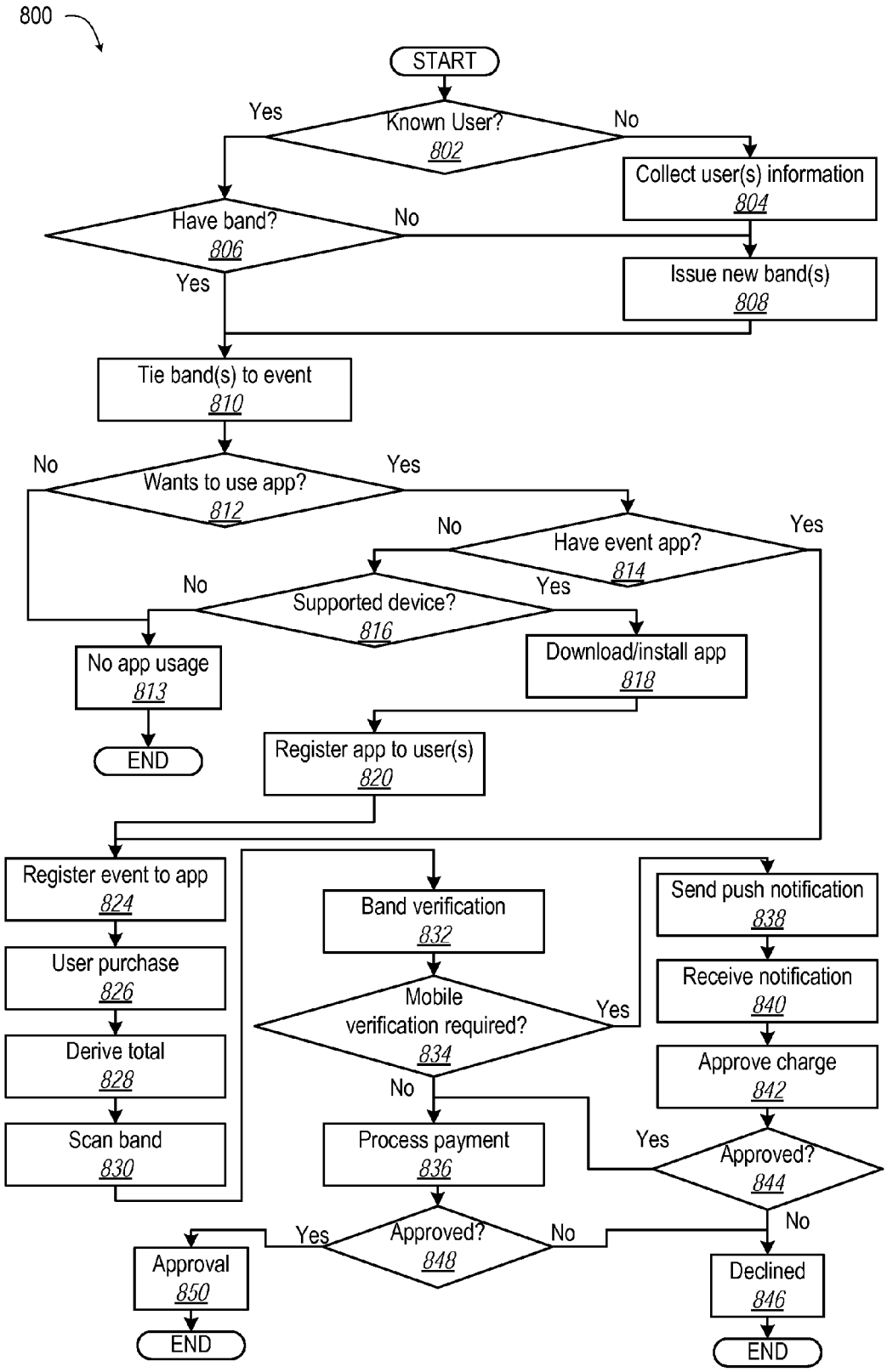
800
START
Known User?
802
Yes
No
Collect user(s) information
804
Have band?
806
No
Yes
Issue new band(s)
808
Tie band(s) to event
810
Wants to use app?
812
No
Yes
Have event app?
814
No
Yes
Supported device?
816
No
Yes
No app usage
813
Download/install app
818
END
Register app to user(s)
820
Register event to app
824
User purchase
826
Derive total
828
Scan band
830
Band verification
832
Mobile verification required?
834
Yes
No
Process payment
836
Approved?
848
Yes
No
Approval
850
END
Send push notification
838
Receive notification
840
Approve charge
842
Approved?
844
Yes
No
Declined
846
END

FIG. 8

NETWORK ARCHITECTURE FOR SYNCHRONIZED DISPLAY

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of U.S. nonprovisional patent application Ser. No. 14/584,123, filed on Dec. 29, 2014, now U.S. Pat. No. 9,119,031, issued Sep. 25, 2015 which in turn is a divisional of U.S. nonprovisional patent application Ser. No. 13/475,146, filed on May 18, 2012, now U.S. Pat. No. 8,924,594, issued Dec. 30, 2014, which claims the benefit of U.S. provisional patent application Ser. No. 61/487,380, filed on May 18, 2011, entitled "Network Architecture for Synchronized Display," the disclosures of which are hereby incorporated by reference herein in their entirety.

BACKGROUND

Mobile devices (e.g., handheld computing devices, personal digital assistants, wireless phones, portable game devices, tablets, netbooks, and so on) have become an integral part of everyday life. Accustomed to the instant gratification that mobile devices provide, consumers demand results from service providers substantially in real-time. However, many industries lag behind when it comes to having service providers present results visually in substantially real-time to consumers during in-person meetings, teleconferences and virtual encounters. For example, consumers of financial, healthcare and educational services demand visual results in substantially real-time during in-person meetings. For example, mobile devices may have a relatively limited amount of display area when compared to a conventional desktop computer, such as a PC.

Furthermore, the retail consumer and industry demand for mobile devices is rising, while the demand for traditional desktop computing devices (e.g., PCs) is decreasing. For example, the healthcare industry purchased 8.8 billion mobile devices in 2010, which was a 7% increase over the previous year. Industries have found that using mobile devices in the workplace reduces costs and increases productivity.

SUMMARY

The present innovation provides a method for authenticating an individual in a transient population, the method including an autonomous vehicle receiving one of a geospatial and a relative location command from a remote control center. The method includes the autonomous vehicle moving to the location associated with the location command. The method includes the autonomous vehicle detecting at least one tracking device configured to transmit location data signals corresponding to the location of the at least one tracking device wherein the at least one tracking device is associated with a user. The method includes a network server a network server in communication with the autonomous vehicle configuring a network architecture with a computer system to identify each of the tracking devices and receive location data signals regarding each of the tracking devices within a defined operating environment when they are in close proximity to one another, wherein the computer system is communicatively coupled to a database. The method includes the network server receiving the location data signals from the at least one tracking device wherein the network architecture delivers location data regarding the at least one tracking device to one or more servers. The method includes the network server determining, by the computer system, the location of the at least one tracking device and identifying the data associated with the user. The method includes the network server configuring the network architecture to enable the one or more servers to project content specifically tailored to the user onto at least one presentation screen, wherein the content is rendered by the one or more tracking device, a user's mobile device or on one or more computing devices communicatively coupled to the mobile device or the at least one tracking device via one or more networks. An integrated user interface is configured to reflect certain content onto the at least one presentation screen when the mobile device is within a predetermined proximity of the operating environment.

According to one or more aspects, the present innovation provides system for authenticating an individual in a transient population. The system has an unmanned vehicle that includes a mobile platform; a communication system carried by the mobile platform; and a controller carried by the mobile platform, in communication with the communication system. The controller includes a processor to execute instructions to configure the unmanned vehicle to: (i) receive one of a geospatial and a relative location command from a remote control center; (ii) move to the location associated with the location command; (iii) detect at least one tracking device configured to transmit location data signals corresponding to the location of the at least one tracking device wherein the at least one tracking device is associated with a user. The system includes a network server in communication with the unmanned vehicle to: (i) configure a network architecture with a computer system to identify each of the tracking devices and receive location data signals regarding each of the tracking devices within a defined operating environment when they are in close proximity to one another, wherein the computer system is communicatively coupled to a database; (ii) receive the location data signals from the at least one tracking device wherein the network architecture delivers location data regarding the at least one tracking device to one or more servers; (iii) determine, by the computer system, the location of the at least one tracking device and identifying the data associated with the user; and (iv) configure the network architecture to enable the one or more servers to project content specifically tailored to the user onto at least one presentation screen, wherein the content is rendered by the one or more tracking device, a user's mobile device or on one or more computing devices communicatively coupled to the mobile device or the at least one tracking device via one or more networks. An integrated user interface is configured to reflect certain content onto the at least one presentation screen when the mobile device is within a predetermined proximity of the operating environment. The unmanned vehicle is remotely controlled or autonomous.

This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter, it is believed that the embodiments will be better understood from the following description in conjunction with the accompanying figures, in which:

FIG. **1** illustrates an operating environment in which various principles described herein can be employed in accordance with one or more embodiments;

FIG. **2** illustrates an example network architecture in which various principles described herein can be employed in accordance with one or more embodiments;

FIG. **3** illustrates an example network architecture in which various principles described herein can be employed in accordance with one or more embodiments;

FIG. **4** illustrates an example network architecture illustrating multiple presentation screens, each with its own wireless personal area network (WPAN), in which various principles described herein can be employed in accordance with one or more embodiments;

FIG. **5** is an illustration of an example implementation of a mobile device in accordance with one or more embodiments of devices, features, and systems for rendering media, according to one or more embodiments;

FIG. **6** illustrates a communication system in which further mobility and flexibility is introduced by remotely controlled or autonomous vehicles, either ground, air or water-based, according to one or more embodiments;

FIG. **7** illustrates an example communication system that includes a mobile device, according to one or more embodiments; and

FIG. **8** illustrates method for authenticating users with an identification device for transactions, according to one or more embodiments.

DETAILED DESCRIPTION

Beacons are taking the world by storm. They are low-powered radio transmitters that can send signals to smartphones that enter their immediate, vicinity, via Bluetooth Low Energy technology. In the months and years to come, we will see beaconing applied in all kinds of valuable ways. For marketers in particular, beacons are important because they allow more precise targeting of customers in a locale. A customer approaching a jewelry counter in a department store, for example, can receive a message from a battery-powered beacon installed there, offering information or a promotion that relates specifically to merchandise displayed there. In a different department of the same store, another beacon transmits a different message. Before beacons, marketers could use geofencing technology, so that a message, advertisement, or coupon could be sent to consumers when they were within a certain range of a geofenced area, such as within a one block radius of a store. However, that technology typically relies on GPS tracking, which only worsen outside the store. With beaconing, marketers can lead and direct customers to specific areas and products within a store or mall.

As a point of technical accuracy, the beacon itself does not necessarily contain messaging. Rather it sends a unique code that can be read only by certain mobile apps. Thus, the carrier of the smartphone has to have installed an, app. If not, no message will arrive. The choice to opt out exists at any time. But the key to beaconing's effectiveness is that the app does not actually have to be running to be awakened by the beacon signal. The present innovation contemplates that beaconing can enhance the entire mobile shopping puzzle. The technology is essentially invisible and can work without the mobile consumer having to do anything. Requiring the mobile consumer to take an action otherwise is a major hurdle for any mobile shopping technology. The shopper only has to agree in advance to receive such messages as they shop.

So imagine walking by or into a store and receiving a text message triggered by a beacon at the store entrance. It alerts you that mobile shoppers are eligible for certain deals, which you can receive if you want. Assuming you accept, you begin receiving highly relevant messaging in the form of well-crafted, full-screen images based on what department or aisle you are strolling through at the moment. Here is an example: implementing beaconing is less about installing the actual beacons and much more about rethinking the overall shopping experience they can help shape. The obvious application of beacon technology is to push content such as greetings, discounts and special offers, product information, branded content or other alerts.

Hospitals are increasingly relying on electronic tracking systems to keep tabs on equipment and lab specimens, and even to monitor the location of patients and staff. The use of the beacon system keeps patients and caregivers connected with wearable tracking devices using location-triggered messaging software. Patients simply wear a tracking device such as a wristband or badge that communicate anywhere there is a beacon. The system is able to track patients and view them on monitors, send alerts based on patient inactivity/activity levels, movement history and entry into restricted zones.

Mobile devices typically have a relatively minimal amount of display to aide mobility of the mobile device. Consequently, mobile devices may be dissatisfying to service provider representatives and consumers when used by the representatives to present data to consumers during in-person meetings. For instance, a doctor working on a wireless phone may find it frustrating when she sees charts, x-rays and other data regarding a patient's prognosis on her wireless phone, but cannot readily share the two inch square display device of the phone with a patient. Likewise, a professor working on a tablet, such as an iPad® (iPad® is a registered trademark of Apple Inc.) may be frustrated when his slideshow is within seconds of reach on the iPad® for his own viewing, but he cannot readily display it to his classroom of students. Moreover, consumers often desire to modify the information presented to them or the service providers desire consumers to provide input on forms, presentations and other media.

Customers can act as beacons. Beacons can facilitate person-to-person communication, which can be helpful for paging sales associates from within an app, rather than wandering around. Smart stores can dispatch sales associates to the right "department" based on their areas of expertise. Beacons can also support turn-by-turn directions to locate products. Combined with a voice or text search function, this can be very helpful for speedy grab-and-go shopping. In-store navigation can be useful if you have an app downloaded that syncs your Wish List or favorites, the ability to locate which ones actually exist in store, and to guide you to which products you'd like to view or purchase that day. There is also potential for "gamification", such as Easter egg hunts.

In store analytics based on beacons can provide more data on in-store behavior in order to optimize merchandising. The connection to mobile has potential for tying habits to customer segments, such as cross-channel buyers, frequent visitors, customers of a certain age or gender, or out-of-town visitors. A beacon can notify a retailer when an app-wielding customer enters the store. Beacons located near point-of-sale can interact with the customer's phone app to complete the transaction. The system can provide information regarding advantages of particular products that are tailored to background information associated with the customer.

Beacon technology is a step towards a closed-loop channel attribution where a marketer can measure the impact of mobile advertising exposure on in-store sales. For example, an e-commerce platform (through its mobile touchpoint) could pull location data based on a customer's proximity to a beacon, and match it to previous exposures of an ad. The overall system can address challenges to reliance on beacons,

such as (1) attribution can be made across the segment of opted-in, tracked customers (incomplete data), and (2) beacons by themselves do not necessarily register human attention to a particular product. Proximity can be an indication of attention. Augmentation with eye tracking, for example, could bolster the information gained from proximity to a beacon.

Smartphone apps that leverage location data can improve the mobile experience; however, there are limits when the mobile device is indoors without access to a geospatial location system such as Global Positioning System (GPS). Beacons can provide a solution to this problem by using Bluetooth Low Energy (BLE) to allow sensors to detect, within inches, how close a smartphone is to the beacon. Beacons can be small enough to attach to a countertop or wall. Beacons can rely on battery-friendly, low-energy Bluetooth connections to transmit prompts or messages directly to a tablet or smartphone. This leaves them poised to transform how enterprises, transit systems, educational institutions, event organizers, and retailer communicate with people. It is a big step ahead that could open the door for groundbreaking services, which could enhance peoples' lives. Likewise, it may also create a new market for retailers who could use the technology to better target consumers.

One lingering question remains as to whether or not consumers will adapt to this new trend, as it teeters on the edge of "cool versus creepy". Beacon technology is still relatively new, leaving people to guess about its actual impact on both the marketing world and payments landscape. Many seem to think it could revolutionize consumerism. On the other hand, others predict big headaches along the way. But one thing is certain, mobile ads, or targeted offers and communications, are effective. Facebook just reported soaring revenue and profits resulting with 53% of 4^{th} quarter revenue associated with mobile advertisements. BLE seems like a natural extension in leveraging the mobile delivery channel with even more effective advertisements of any degree.

Using BLE-powered beacons, merchants could instantly become notified of your presence, pull up your profile, greet you by name and provide a personalized shopping experience. According to Bluetooth.com, by 2018, nine out of ten Bluetooth-enabled smartphones are expected to be Smart Ready devices. While consumer acceptance is still untested, a recent study commissioned by Swirl and ResearchNow found that 77 percent of consumers would be willing to share their smartphone location data, which is a prerequisite for beacon-triggered campaigns, as long as they receive enough value in return. That research also found that 65 percent of consumers are much more likely to entrust their location information to their favorite retailers than to shopping/deals apps, Google or Facebook.

That said, if BLE technology is the future of mobile payments and mobile marketing, merchants will need to be very cautious about their approach to avoid creeping out their consumers, as customers are already bombarded by irrelevant offers and a vast number of other communication types. The best way for merchants to accommodate this is by leveraging big data such as the retailer's CRM database and inventory management system, which will enable a merchant to analyze past spend patterns to make targeted offers based on product availability or inventory in a real-time manner. Although a more complex approach, that can be the best way to drive incremental sales.

For example, a very large national big box retailer presents or sends all consumers the same flyer with the same discount on a recurring basis. In one instance, the retailer does not require the consumer to bring in the coupon, as the cashier will just scan one already on-hand at the point-of-sale. If a retailer truly desires to drive incremental sales, the approach taken should be to provide product-specific discount at the individual level that are not advertised to the masses. If retailer do not take such a targeted approach, the retailer risks over-couponing for something that did not need to be discounted, which could actually cut into revenues and not increase them. Furthermore, consumers may quickly shy away from nationally. Based on an analysis by Hillshire's agency BPN, which is part of the IPG Mediabrands global network, there were 6000 in-store engagements in the first 48 hours of the two-month trial, and purchase intent increased 20 times. Shopper needed an app such as Epicurious, Zip List, Key Ring or Checkpoints. This beacon platform is run by InMarket. The present innovation can include use of GIMBAL Context Aware Platform, available from Qualcomm at http://www.gimbal.com.

A network architecture is described. In an implementation, a network architecture communicatively couples one or more mobile devices, each mobile device communicatively coupled to one or more presentation screens and one or more servers for improved visual communication during in-person meetings, teleconferences and virtual encounters. A presentation screen includes without limitation a television, a computer monitor, a high-definition television, an Internet television, and a projector and screen unit. In an implementation, the network architecture delivers location data regarding each of the mobile devices to the one or more servers. Various embodiments provide a network architecture configured to enable consumers, such as patients, to modify data presented on the presentation screens through a second mobile device.

Also provided are procedures for service providers to deliver presentations to consumers via a presentation screen that displays in substantially real-time certain data displayed on a service provider's mobile device. In an implementation, a presentation screen automatically reflects (or mirrors) certain displays on a service provider's mobile device when the mobile device is within a predetermined proximity of the presentation screen. In an implementation, a first mobile device is configured to project data displayed on the mobile device onto the presentation screen for a second device, such as a second mobile device or a server, configured to collect such data projected by the first mobile device. For example, a patient can fill out an electronic form with input data on the first mobile device (the patient's own mobile device or a mobile device provided to him) and have the data reflected on the presentation screen, which a second mobile device, such as that of a doctor or a nurse, or a hospital server can collect the input data.

To these and other ends, network architectures are described. In an implementation, a network architecture communicatively couples one or more mobile devices, each mobile device communicatively coupled to one or more presentation screens and one or more servers. A presentation screen includes without limitation a computer monitor, a high-definition television, Internet televisions (such as, ANDROID TV™ television (ANDROID™ is a trademark of Yen International, LLC) and APPLE TV® television (APPLE® is a registered trademark of Apple Inc.) for example), traditional televisions, and a projector and screen unit. In addition, presentation screens can themselves be mobile, and can employ solar technology or radio frequency harvesting to reduce energy costs. The use of a presentation screen employing solar technology, radio frequency harvesting and other alternate energy sources can enable presentations to occur in the absence of an electric outlet, or where available electric outlets are scarce.

Various embodiments include a network architecture configured to identify each of the devices, including presentation screens and mobile devices, communicatively coupled to the network, and to deliver location data regarding each of the mobile devices to the servers.

Also provided is a network architecture configured to enable service providers to deliver presentations to consumers via a presentation screen that mirrors certain displays on the mobile device in substantially real-time. Various embodiments provide a network architecture configured to enable consumers, such as patients, to modify data presented on the presentation screens through a second mobile device. In an implementation, a presentation screen automatically reflects certain displays on the mobile device when the mobile device is within a predetermined proximity of the presentation screen.

In addition, an integrated user interface on a mobile device is described. In an implementation, a mobile device includes a display device and one or more modules. The one or more modules are configured to display data represented in a user interface on the display device and on the presentation screen, automatically and without user interface. The data to be displayed on the presentation screen may be rendered by the mobile device or on one or more data sources communicatively coupled to the mobile device via a network. For example, the integrated user interface is configured to deliver slideshow presentations to consumers via a presentation screen, which mirrors in substantially real-time certain slideshow displays on the display device of the mobile device. In an implementation, an integrated user interface is configured to automatically reflect certain data displayed on a service provider's mobile device onto a presentation screen when the mobile device is communicatively coupled to the network and within a predetermined proximity of the presentation screen.

Various embodiments also include one or more fail-safe detection and prevention processes described herein to prevent sensitive data from reaching unintended recipients. A first fail-safe detection and prevention process of providing networked bracelets to users, such as patients, is provided to track the location of these users to detect their presence in relation to presentation screens before data is sent to the presentation screens. A second fail-safe detection and prevention process is effective to provide wire mesh or other radio frequency-canceling equipment to be installed to prevent the transfer of sensitive data from being distributed to unintended recipients. A third fail-safe detection and prevention process is effective to prevent the delivery of data to presentation screens upon the detection of two or more networked bracelets associated with the same secure wireless personal area network (WPAN) network. Further, certain modules, such as a send certain display module and a stop module, are provided to prevent certain data from being received by unintended recipients. The stop module may have various settings, such as stopping the sending of data to the presentation screen upon manual activation or automatically stopping the sending of data to the presentation screen after a selected period of time has expired.

Various embodiments include a network architecture including a master server configured to identify each of device, including presentation screens and mobile devices, communicatively coupled to the network, and to deliver location data regarding each of the mobile devices to the servers. Furthermore, the network architecture provides for the master server to be communicatively coupled to a subscriber database of recognized mobile devices. The master server organizes and operates the network, and recognizes devices by unique codes, such as an IP addresses, MAC addresses or other identifiers, stored in the subscriber database.

In the following discussion, a variety of example implementations of a mobile device (such as a mobile device having a touchscreen) are described. Additionally, a variety of different functionality that may be employed by the mobile device is described for each example, which may be implemented in that example as well as in other described examples.

FIG. **1** illustrates an example of an operating environment in which various principles described herein can be employed in accordance with one or more embodiments. A patient's private hospital room **100** is shown. On the wall is mounted a presentation screen **105**, specifically a flat screen high-definition television, which a patient **110** watches while recovering from surgery. Other presentation screens can be used, and can be mobile or fixed within the hospital room. Furthermore, in some embodiments, presentation screens can employ solar technology to reduce energy costs. The use of a presentation screen employing solar technology or some other alternate energy source, such as radio frequency harvesting technology, can enable presentations to occur in the absence of an electric outlet, or where available electric outlets are scarce. In various embodiments, certain mobile devices utilize solar technology and/or radio-frequency harvesting technology to maximize battery life.

In the hospital room **100**, a doctor **115** visits patient **110** to present post-operation instructions. The doctor creates a slideshow **125** of patient specific post-operation instructions on his mobile device **130** while in the hospital room. The display device of the mobile device **130** syncs with the presentation screen **105** to enable the doctor to present the instructions to the patient. In an example implementation, a portion of the display device of the mobile device **130** is displayed on the presentation screen **105**, and in other implementations, the entirety of the display device is displayed on the presentation screen **105**.

In an example implementation, the slideshow **125** resides on a database connected to the gateway server operating on a secure hospital network, such as an intranet. In this example, the doctor downloads the slideshow **125** from the database onto his mobile device **130** through the secure network, such as a password protected Wi-Fi® (Wi-Fi® is a registered trademark of the Wi-Fi Alliance) network. The mobile device **130** transmits the slideshow **125** to the presentation screen **105** through a short range wireless network, such as a wireless personal area network (WPAN).

In an example implementation, the presentation screen **105** is a computing device equipped with modules and data of its own. In such implementations, the presentation screen **105** can come preprogrammed with certain standard forms and documents to be shared with individuals, such as patients.

FIG. **2** illustrates an example network architecture **200** in which various principles described herein can be employed in accordance with one or more embodiments.

In the example network architecture **200**, server **205** is communicatively coupled through a secure local area network **210** to a presentation screen **215**. Server **205** is a server-grade computing device, and can include several computing devices. The secure network **210** may be a local area network (LAN). The secure network may be wired (such as connected via Ethernet cables, for example) or may be a wireless network. In some implementations, a connective device **220** is used to connect the presentation screen **215** through secure network **210** to the server **205**.

Mobile devices with display devices, such as a laptop **225**, a tablet **230**, and a mobile phone **235**, communicate through

a secure WPAN network **245** with the presentation screen **215**. In addition to mobile devices with display devices are tracking devices, such as bracelet **247** and smartcard **249**, such as an RFID enabled shopper loyalty card or a RFID enabled credit and/or debit card. Tracking devices do not have display devices. For clarity, mobile devices with display devices can generate location data that can be tracked by server **205**. In an example implementation, the network architecture enables the mobile devices to project one or more images on its display device onto the presentation screen **215** through the secure WPAN network **245**. In an example implementation in a retail environment, the network architecture enables a server to track the location of a shopper as she enters a display area in a store with a smartcard **249** and enables the server to project marketing content specifically tailored to the shopper onto a presentation screen at a point-of-purchase display in the store.

An example implementation of secure WPAN network **245** is a password protected Wi-Fi® network. An example implementation of WPAN network **245** includes a ZIGBEE® communication network which operates within the Institute of Electrical and Electronics Engineers (IEEE) 802.15.4 communication protocol (ZIGBEE® is a registered trademark of the Zigbee Alliance Corporation). The ZIGBEE® protocol operates in the industrial, scientific and medical (ISM) radio bands; i.e., 868 MHz in Europe, 915 MHz in the USA and 2.4 GHz in most other jurisdictions worldwide. ZIGBEE® technology is intended to be simple, inexpensive and readily maintainable. Likewise, the wireless network connecting the tablet to the television can also be a typical BLUETOOTH® communication network, which was used as the basis for the IEEE 802.11 communication protocol (BLUETOOTH® is a registered trademark of Bluetooth Sig, Inc.). Other wireless networks are also contemplated.

WPAN networks enable WPAN-equipped devices to communicatively couple to each other when they are in close proximity to one another. For example, when the mobile device comes into close proximity (such as within several meters, for example) of the presentation screen **215**, the mobile device can communicate with the presentation screen **215** through the WPAN network **245** as if connected by a cable. In an implementation, when the mobile device couples to the WPAN network **245** it locks out other devices selectively, preventing needless interference and unauthorized access to information.

In an implementation, a first mobile device, such as laptop **225**, is configured to project data displayed on the first mobile device onto the presentation screen **215** for a second device, such as tablet **230**, configured to collect such data projected by the first mobile device. For example, a patient can fill out an electronic form with input data on the first mobile device (the patient's own mobile device or a mobile device provided to him) and have the data reflected on the presentation screen **215**, which a second mobile device, such as that of a doctor or a nurse, or a hospital server, such as server **205**, can collect the input data from the patient.

In implementations employing presentation screens **215** that are not WPAN-enabled off-the-shelf, the presentation screen **215** is physically coupled to a digital media receiver **250** or similar receiver to enable presentation screen communication over secure network **245**. The digital media receiver **250** is equipped with one or more radio receivers and one or more transmitters to communicate with other devices, such as the mobile devices, on the WPAN network **245**. In selected embodiments, the digital media receiver **250** is housed within the connective device **220**. Having described an example network architecture **200**, consider now a discussion of another example network architecture.

In an example implementation, server **205** tracks the location of bracelet **247** and smartcard **249** within the operating environment as these tracking devices connect to various WPAN networks, including WPAN network **245**. The server can be associated with a subscriber database that provides unique device numbers with the devices' associated users. For example, an account owner named Jane Doe enters a financial institution with a smartcard **249**, which in this example is a debit card enabled with an RFID chip. Through the network association of smartcard **249** with WPAN network **245** in the financial institution, the server **205** recognizes that Jane Doe has entered the financial institution, recognizes her location, and delivers certain data, such as marketing materials customized to Jane Doe, to a presentation screen **215**, which is in close proximity to Jane Doe.

In another example implementation, the bracelet **247** is provided to a patient in a hospital. The presumed location of the bracelet **247** is tracked by server **205** through network **245** and network **210**.

FIG. **3** illustrates an example network architecture **300** in which various principles described herein can be employed in accordance with one or more embodiments. In the example network architecture **300**, a gateway server **305** is coupled to second server **310** and a third server **315**. The gateway server is connected to a switch **320** and through cables, such as Ethernet cables, to one or more presentation screens **325**.

Mobile devices, such as a laptop **330**, a tablet **335**, and a mobile phone **340**, communicate through a secure WPAN network **350** with the presentation screen **325**. In an example implementation, the network architecture is configured to enable a mobile device to display one or more images from its display device onto the presentation screen through the secure WPAN network **350** in substantially real-time.

Having described an example network architecture **300**, consider now a discussion of another example network architecture. FIG. **4** illustrates an example network architecture **400**. In the example network architecture **400**, a server **405** is coupled to a wireless network **410**. Server **405** is a master server, which organizes and operates wireless network **410**, and recognizes networked devices, including mobile devices and presentation screens, by their unique identification codes, such as IP addresses, stored in a subscriber database **408** associated with the server **405**. The subscriber database **408** associates the unique identification codes of each networked devices with users. For example, a presentation screen in a certain hospital room is associated with the patient assigned to that room. The subscriber database **408** can be housed within server **405** or communicatively coupled to server **405** through an Ethernet cord, or through an external network, such as the Internet, on the occasions that the subscriber database **408** is stored with an enterprise server at a remote location, such as an enterprise headquarters. Examples of the subscriber database **408** include without limitation a database of healthcare professionals, a loyalty reward program database, a social network database, and so on. Wireless network **410** may be of any suitable type for data transfer, such as Wi-Fi®.

The server **405** communicates over wireless network **410** with a first presentation screen **415** through a first connective device **418** and a second presentation screen **420** through a second connective device **422**. The connective devices **418**, **422** can be integrated into the internal hardware of the presentation screen **415**, **420**, rendering the presentation screens networked devices, or each of the connective devices **418**,

422 can be an external hardware component that is physically connected to the presentation screen.

In this example network architecture **400**, each presentation screen has its own secure wireless network on its own identifiable radio frequency. Independent secure wireless networks for each presentation screen enables mobile devices to securely push data from the mobile devices or request data from server **405** to be projected onto particular presentation screens while other presentations screens remain available for presentations delivered by other mobile devices on separate secure wireless networks. Connective devices **418**, **422** are equipped to communicate via a second secure wireless network, such as Bluetooth, for proximity based communication and location detection of the mobile devices. As discussed above, connective devices **418**, **422** are housed within the presentation screens **415**, **420**, for example, when the presentation screens **415**, **420** are networked televisions. Thus, a first mobile device **435** communicates through the first connective device **418** and through a first secure WPAN network **430** with first presentation screen **415**.

In an example implementation of the example network architecture **400**, the first mobile device **435** is configured to activate a display of data stored in connection with the server **405** on the first presentation screen **415** through wireless network **410**. In an example implementation of the example network architecture **400**, the first mobile device **435** is configured to deliver in substantially real-time data generated on the first mobile device **435** through wireless network **410** to the first presentation screen **415**. In an example implementation of the example network architecture **400**, the first mobile device **435** is configured to deliver in substantially real-time data generated on the first mobile device **435** through the first secure WPAN network **430** to the first presentation screen **415**.

Because the server **405** recognizes the IP address of the first mobile device **435** and recognizes that it is communicatively coupled to a first presentation screen **415** through secure WPAN network **430**, responsive to a data request of the first mobile device **435**, the server **405** delivers data to the first presentation screen **415** securely over wireless network **410** to the first presentation screen **415** and not to other presentation screens connected to the wireless network **410**.

In an example implementation, the data presented on the first presentation screen **415** is associated with a user identified as assigned to the room in which the first presentation screen **415** is located. The server **405** identifies users associated with each device through the subscriber database **408**. For example, as a doctor with the first mobile device **435**, which previously associated with wireless network **410** upon the doctor's arrival to a hospital with the first mobile device **435** in operation mode, enters a first patient's room in which the first presentation screen **415** is located, the first mobile device **435** associates with the first secure WPAN network **430**, and data associated with first patient is displayed upon the first presentation screen **415**. Such data can be stored on a database associated with server **405** and is triggered to be sent to the first presentation screen **415** by a request sent to the server **405** from the first mobile device **435**. According to settings on the first mobile device **435**, the data request can be automatically sent as the first mobile device associates with the secure WPAN networks **430**, **450**.

In an example implementation, as a data request is received by server **405**, a response is prepared and delivered to the requested destination in substantially real-time. Hence, as the first mobile device **435** is in close proximity to the first secure WPAN network **430** in the first hospital room with the first presentation screen **415** and a first patient is assigned to the first hospital room equipped, the server **405** delivers certain electronic medical records associated with the first patient automatically to the presentation screen according to a module on the first mobile device. According to settings on the first mobile device **435**, data requests to be presented on the presentation screen can be sent manually, and a subset of user data can be delivered automatically or manually. Various fail-safe detection and prevention processes are described herein and will be described in turn.

Continuing with the example implementation described above in connection with FIG. **4**, according to a first fail-safe detection and prevention process, the data associated with the first patient is sent to the first presentation screen **415** upon the server **405** discovering that a networked bracelet (such as bracelet **247** in FIG. **2**) assigned to the first patient is associated with the first secure WPAN network **430**. In this example implementation, if the first patient is associated with the first secure WPAN network **430**, then the first patient is in the first hospital room, since the first secure WPAN network **430** has a small range.

In selected embodiments, according to a second fail-safe detection and prevention process, wire mesh or other radio frequency-cancelling equipment can be installed to prevent sensitive data from being distributed to unintended recipients. In selected embodiments, a third fail-safe detection and prevention process can be implemented.

The third fail-safe detection and prevention process includes sending a delivery failure message to the first mobile device **435** upon receiving a data request at the server **405** on the event that the server **405** detects two or more networked bracelets associated with the first secure WPAN network **430**. This third fail-safe detection process is useful when two or more patients are placed in a single hospital room with a single presentation screen that is viewable by all patients in the hospital room.

Various embodiments provide for any combination of the above described fail-safe detection and prevention processes to be employed in a network architecture. Further still, no fail-safe detection and prevention process may be employed in a network architecture.

In addition, a second connective device **422** communicatively couples the presentation screen **420** with a second secure WPAN network **450**. A second mobile device **455** is connected to second secure WPAN network **450**. In an example implementation, as the second mobile device **455** is placed within range of the second secure WPAN network **450**, certain data displayed on the second mobile device **455** is automatically forwarded through wireless network **410** to the second presentation screen **420**. In an example implementation, according to settings on the second mobile device **455**, as the second mobile device **455** is placed within range of the second secure WPAN network **450**, certain data displayed on the second mobile device **455** is automatically forwarded through the second WPAN network **450** to the second presentation screen **420**.

The second mobile device **435** will not present materials onto the second presentation screen **420** without activation of certain modules and settings on the second mobile device **435** to recognize the second secure WPAN network **450**. Thus, each mobile device in the example network architecture **400** securely sends data to its respective presentation screen. Such an implementation is useful where privacy is of concern, such as in the sharing of (1) medical records to patients in hospital rooms, (2) financial records in conference rooms in financial institutions, and (3) medical and educational records by counselors and advisors in educational institutions.

FIG. **5** is an illustration of an example implementation **500** of a mobile device **502** in accordance with one or more embodiments of devices, features, and systems for selecting data. The mobile device **502** includes a display device **504** that may be used to output a variety of content, such as a caller identification (ID), electronic medical records, contacts, images (such as photos, x-rays, graphs, charts, slideshows, for example) as illustrated, email, multimedia messages, Internet browsing, game play, music, video and so on. In an implementation, the display device **504** is configured to function as an input device by incorporating touchscreen functionality, e.g., through capacitive, surface acoustic wave, resistive, optical, strain gauge, dispersive signals, acoustic pulse, and other touchscreen functionality. For example, mobile device **502** includes laptops, mobile phones, tablets and personal digital assistants.

The mobile device **502** is also illustrated as including a communication module **506**. The communication module **506** is representative of functionality of the mobile device **502** to communicate via a network **508**, e.g., via browser functionality. In another example, the communication module **506** may include telephone functionality to make and receive telephone calls. The communication module **506** may also include a variety of other functionality, such as to capture content, form short message service (SMS) text messages, multimedia messaging service (MMS) messages, emails, status updates to be communicated to a social network service, conduct telephone calls, and so on. A variety of other examples are also contemplated, such as producing financial records, financial plans, educational records, educational presentations, demonstratives, and medical records.

The mobile device **502** is also illustrated as including a user interface module **510**. The user interface module **510** is representative of functionality of the mobile device **502** to generate, manage, and/or output a user interface **512** for display on the display device **504**. A variety of different techniques may be employed to generate the user interface **512** such that the user interface **512** may provide a variety of functionality.

For example, the user interface module **510** may configure the user interface **512** to act as an integrated data hub for the display device **504** and a presentation screen (such as presentation screen **215** of FIG. **2**). For instance, the user interface **512** includes a first window **514** that includes representations of data, in this event an image of a man in a wheelchair, produced by the mobile device **502**.

As an integrated data hub, the user interface **512** may represent data from a variety of different sources. For example, a second window **516** in the user interface may represent data that is accessible by the mobile device **504** via the network **508**, such as from a server **518** having one or more items of data **520**. The data **520** may take a variety of forms, such as electronic medical records, which include photographs of x-rays, charts, graphs, forms and documents. For example, the data **520** from the server **518** reflected in a second window **516** includes charts and graphs. The data **520** may also be representative of data that is available for download over the network **508** for local storage on the mobile device **502**, which may be represented as data **522**. In another example, other portions may be provided such as financial records, educational slideshows, articles, and so on that are not specific to the mobile device **502** but instead are provided by a service provider, e.g., the server **518**. Thus, a wide variety of different data may be represented in the user interface **512** by the user interface module **510**.

The mobile device **504** is configured to display its data on a presentation screen (see FIGS. **1-4**). The mobile device **504** is configured to display the data of the entire display device **504** to the presentation screen when the "send" module **515** is selected. The mobile device **504** is also configured to send a smaller portion of the display device **504**, such as just the data displayed in window **514** or the data shown in window **516** to the presentation screen. The "send certain display" module **517** is configured to send less than the entire display device **504** to the presentation screen upon activation. In addition, all or a portion of the display device **504** may be presented on the presentation screen upon activation of the "auto-send" module **519**. Also, a "stop" module **525** is provided which is configured to stop the sending of data to the presentation screen for display thereon upon activation of the stop module **525**.

Further in the description of FIG. **5**, to provide a wide variety of different data in a variety of media ultimately to the presentation screen, the user interface module **510** may leverage one or more modules **524**, which may be configured to render particular types of data. For example, one of the modules **524** may be configured to render charts and graphs, another one of the modules **524** may be configured to fetch and render streaming data **520** over the network **508**, and so on. Thus, the user interface module **510** may configure the user interface to include representations of data from a variety of different sources and provide access to the data through a variety of different modules **524**. Further, through the send module **515**, send certain display **517** and auto-send module **519**, the user has options for delivering data to the presentation screen. In this way, the user interface **512** integrates this data to be selectable for rendering in a single view on the presentation screen.

FIG. **6** illustrates a communication system **600** in which further mobility and flexibility is introduced by remotely controlled or autonomous vehicles, either ground, air or water-based, including an unmanned vehicle (UV) **602** and a computing device **604**. An unmanned vehicle (UV) **602** may include any known UV, such as an unmanned aerial vehicle (UAV) (e.g., a drone), an unmanned aerial system (UAS), an unmanned surface vehicle (USV), an unmanned ground vehicle (UGV), unmanned underwater vehicle (UUV), and the like. As will be appreciated, UV **602** may be configured to travel via land, sea, sub-sea, air, or any combination thereof. As will be appreciated, UV **602** may be used for performing a wide range of tasks.

In one example, one or more UVs may connect to an application program, such as Petrel®, using a framework, such as Ocean® framework directly. In another example, the one or more UVs may connect to an application program using a web service, such as Ocean® Web service (also owned by Schlumberger). The UVs may then link into the framework. Plug-ins, which may be custom built, may be configured to analyze and process the data captured by the UVs. The data, which may comprise, as non-limiting example, images, a video stream, GPS locations, and air quality data, may be shared with other environments, such as Studio®, on other platforms, such as AVOCET® or TECHLOG®, based on their respective domains.

UV **602** may include one or more sensing devices for capturing data. Sensing devices may be coupled to UV **602** or may be internal to UV **602**. As non-limiting examples, sensing devices may include cameras, location sensors (e.g., GPS sensors), electromagnetic spectrum sensors, gamma ray sensors, biological sensors, chemical sensors, thermal sensors, geophones, etc. UV **602**, and more specifically, sensing devices, may be configured to capture, for example, time-dependent (e.g., variant) data, environmental data, or both. Time-dependent data may be associated with one or more geographical locations, which may include one or more areas

of interest. The time-dependent data may also be associated with, for example, a production operation, a pipeline, flaring, and the like. Environmental data may include, for example only, seismic data, drilling data, surface images, or other types of data where the location varies but time may remain generally constant.

In one embodiment, an unmanned vehicle such as an unmanned aerial vehicle (UAV) **602** by carrying a mobile device **604** that communicates within the communication system **600** using one or more modalities. For example, the mobile device **604** can communicate with a communication satellite **606**, or an atmospheric satellite UAV such as Titan/Google Solara 50 or other airborne networks or swarming aerial vehicle network **608**, a cellular LTE access network **610**, wireless access points/radios **612** or to another mobile device **604'**, such as smartphone carried by a user **620**. One or more of these communication connections can further communicate to a network **616**, such as the Internet, cellular network or other communication network including ad hoc mesh networks, which in turn communicates with other users, depicted as a command center **618**. The mobile device **604** of the UAV **602** can authenticate through the network **616**.

In one or more embodiments, the UAV **602** can operate using control instructions derived from the Open Source Dronecode Project 24 that was launched by Linux Foundation or other open source system code. The Project brings together existing open source drone projects and assets under a non-profit structure governed by The Linux Foundation. The result is a common, shared open source platform for unmanned systems. Dronecode includes the APM software platform and associated code, which until now has been hosted by 3D Robotics.

In one or more embodiments, the UAV **604** tracks and follows the user **620** by tracking a beacon or radio frequency identification (RFID) device, depicted as a bracelet **622**. Alternatively or in addition, the unmanned system can acquire and track the user **620** using sensors such as infrared sensors (IR), electro-optical (EO) sensors and radar as well as other video sources **624**. The UAV **602** can be deployed to perform tasks such as physical security, crowd control and public safety, intelligence, surveillance, reconnaissance and other law enforcement tasks etc., under the direction of the command center **618**. Operations of such a communication system **600** can be extended unmeasurable distance by building different types of networks to include mobile ad-hoc networks, or all systems communicating back to the control center **618** at any given time. The communication system **600** can be dynamically configured for areas not served by traditional network internet access or high speed data links such as in remote areas during an emergency situation following a natural or manmade disaster or by the lack of infrastructure.

The authentication abilities of the UAV **604** can provide for singling out individuals or mobile vehicles that are visually or otherwise detected for but which an authenticating mobile device is not present. For example, the communication system **600** can focus security efforts on those entities that are unknown to the communication system **600** and could pose a threat.

Turning now to FIG. **7**, there is depicted a block diagram representation of an example communication system **700** that includes a mobile device **704** within which several of the features of the disclosure can be implemented. In an exemplary aspect, the mobile device **704** includes the hardware and software to support the various wireless or wired communication functions as part of a communication system **702**. According to the general illustration, the mobile device **704** includes a radio frequency (RF) front end **705** that transmits via one or more antennas **706**. The example mobile device **704** can output audio to a user **708** via earpiece speaker **710** during a two-way communication session. The earpiece speaker **710** is oriented to be placed to the user's **708** ear and outputs audio at a volume appropriate for this proximity.

Referring now to the specific component makeup and the associated functionality of the presented components, the mobile device **704** can include an integrated circuit (IC) processor **718**. The processor **718** can include one or more programmable microprocessors, such as a data processor **720** and a digital signal processor (DSP) **722**, which may both be integrated into a single processing device, in some embodiments. The processor **718** controls the communication, user interface, and other functions and/or operations of the mobile device **704**. These functions and/or operations thus include, but are not limited to, application data processing and signal processing. The present innovation can be implemented using hardware component equivalents such as special purpose hardware, dedicated processors, general purpose computers, microprocessor-based computers, micro-controllers, optical computers, analog computers, dedicated processors and/or dedicated hard wired logic. The mobile device **704** can be one of a host of different types of devices, including but not limited to, a mobile cellular phone or smart-phone, a cordless phone, a desktop computer, a laptop, a net-book, an ultra-book, and/or a tablet computing device.

Memory **724** is connected to processor **718** and may include volatile memory and/or non-volatile memory that store software code such as software **726** and/or firmware **728**. One or more executable applications **730** can be stored within memory **724** for execution by the processor **718**. The memory **724** may be augmented by data storage, illustrated as a removable storage device (RSD) input/output (I/O) interface **734** that receives a RSD **736** containing data or executable instructions **738**. The associated functionality and/or usage of each of the software modules will be described in greater detail within the descriptions, which follow.

Mobile device **704** includes input/output (I/O) devices **742** for interacting with the user **708**. The I/O devices **742** can include one or more input devices, such as camera **744**, microphone **746**, touch screen and/or touch pad **748**, and keypad **750**. The I/O devices **742** can also have one or more output devices, such as display **752**, loud speaker **754**, the earpiece speaker **710**, and haptic output device **756**.

A communication mechanism **770** can convert information from the processor **718** or an appropriate communication protocol for wireless transmission by the RF front end **705** or wired transmission by an I/O controller **772**. The communication mechanism can convert a received communication signals encoded for a communication protocol from the RF front end **705** or I/O controller **772** to information usable by the processor **718**. The communication mechanism **770** can include one or more communication components, including wireless wide area network (WWAN) transceiver **774** to communicate with a radio access network (RAN) **776** of a cellular LTE network **778** or an ad hoc mesh network **779**. The RAN **776** is generally represented as including a base station, depicted as an evolved base node ("eNodeB") **780** controlled by a radio network controller (RNC) **782** that transmits and receives over a base station antenna **784**.

Alternatively, or in addition to a WWAN transceiver **774**, communication mechanism **770** can include a wireless local area network (WLAN) module **785** to communicate with wireless devices and network accessible via a wireless access point **786**. As an example, the WLAN module **785** may support IEEE 702.11 standards to detect wireless access point **786** as a WiFi hotspot. Alternatively or in addition, the com-

munication mechanism **770** can include a wireless personal area network (WPAN) transceiver **787** for communication with WPAN devices, depicted as a Bluetooth® headset **788** whose use would be indicative of hands-free use. Alternatively or in addition, the communication mechanism **770** can include a near field communication (NFC) transceiver module **789**, such as can be utilized for exchanging files with another user device or a payment kiosk **790**. As further illustrated, mobile device **704** can also include components for wired communication over the I/O controller **772**, such as modem **791** for communicating over a plain old telephone system (POTS) **792** and wired local area network (LAN) interface **793** such as an Ethernet module for connecting to a local area network (LAN) **794**. The I/O controller **772** can also serve to connect to wired peripheral devices **795**. A global navigation satellite system (GNSS) receiver **796** of the communication mechanism **770** can receive signals from GNSS satellites **797** via the RF front end **705** in order to provide location data. Global Positioning System (GPS) is one example of a GNSS.

FIG. **8** illustrates a method **800** for authenticating users with an identification device for transactions. In one or more embodiments, the method **800** includes a determination of whether a detected individual is a known user (decision block **802**). In response to determining that the detected individual is not a known user in decision block **802**, then user information is collected (block **804**). In response to determining that the detected individual is a known user in decision block **802**, then a further determination is made as to whether the identified user has a band (block **806**). In response to determining that the identified individual does not have a band in decision block **806** or after collecting user information in block **804**, then a new band is issued (block **808**). In response to determining that the identified individual does have a band in decision block **806** or after issuing a new band in block **808**, then the band is tied to an event (block **810**).

Method **800** includes a determination of whether the identified and associated user wants to use an app that facilitates purchases at an event (decision block **812**). In response to determining that the identified and associated user does not want to use the app that facilitates purchases at the event in decision block **812**, then no application usage is enabled (block **813**). Then method **800** ends. In response to determining that the identified and associated user wants to use the app that facilitates purchases at the event in decision block **812**, then the method **800** includes a further determination of whether the user has a mobile device with the event app (decision block **814**). In response to a determination that the mobile device does not have the event app in decision block **814**, then a further determination is made as to whether the mobile device is a supported device (decision block **816**). In response to determining that the mobile device is not a supported device in decision block **816**, then the method returns processing to block **813**. In response to determining that the mobile device is a supported device in decision block **816**, then the app is downloaded and installed on the mobile device (block **818**). The new app is registered to the user (block **820**).

In response to a determination that the mobile device has the event app in decision block **814** or after registering the downloaded app in block **820**, then method **800** includes registering the event to the app (block **824**). Method **800** includes user making a purchase (block **826**). Merchant derives total of purchase (block **828**). Merchant scan band at payment terminal (block **830**). Transaction server verifies band (block **832**). Transaction server makes a determination whether mobile device verification is required (decision block **834**). In response to the transaction server determining that mobile device verification is not required in decision block **834**, method includes payment processor processing the payment (block **836**). In response to the transaction server determining that mobile device verification is required in decision block **834**, method **800** includes transaction server sending push notification to mobile application (block **838**). Method **800** includes mobile application receiving notification (block **840**). Method **800** includes mobile application receiving user approval of charge (block **842**). Method **800** includes mobile application making a determination of whether the user has approved the charge (decision block **844**). In response to determining that the user has approved the charge in decision block **844**, then method **800** return to block **836** to process the payment. In response to determining that the user has not approved the charge in decision block **844**, then method **800** indicates to the merchant that the transaction is declined (block **846**). Then method **800** ends. After processing payment in block **836**, then method **800** includes a determination of whether the payment processor has approved the payment (decision block **848**). In response to determining that the payment processor has approved the payment in decision block **846**, then method **800** includes indicating to the merchant that the purchase is approved (block **850**). Then method **800** ends. In response to determining that the payment processor has not approved the payment in decision block **846**, then method **800** returns to block **846** indicating to the merchant that the purchase is declined (block **846**). Then method **800** ends.

The examples presented herein are intended to illustrate potential and specific implementations of the present disclosure. It can be appreciated that the examples are intended primarily for purposes of illustration of the invention for those skilled in the art. No particular aspect or aspects of the examples are necessarily intended to limit the scope of the present invention. For example, no particular aspect or aspects of the examples of system architectures, user interface layouts, or screen displays described herein are necessarily intended to limit the scope of the invention.

It is to be understood that the figures and descriptions of the present invention have been simplified to illustrate elements that are relevant for a clear understanding of the present invention, while eliminating, for purposes of clarity, other elements. Those of ordinary skill in the art will recognize, however, that these sorts of focused discussions would not facilitate a better understanding of the present invention, and therefore, a more detailed description of such elements is not provided herein.

Any element expressed herein as a means for performing a specified function is intended to encompass any way of performing that function including, for example, a combination of elements that performs that function. Furthermore the invention, as may be defined by such means-plus-function claims, resides in the fact that the functionalities provided by the various recited means are combined and brought together in a manner as defined by the appended claims. Therefore, any means that can provide such functionalities may be considered equivalents to the means shown herein.

In various embodiments, modules or software can be used to practice certain aspects of the invention. For example, software-as-a-service (SaaS) models or application service provider (ASP) models may be employed as software application delivery models to communicate software applications to clients or other users. Such software applications can be downloaded through an Internet connection, for example, and operated either independently (e.g., downloaded to a laptop or desktop computer system) or through a third-party service provider (e.g., accessed through a third-party web site). In

addition, cloud computing techniques may be employed in connection with various embodiments of the invention.

Moreover, the processes associated with the present embodiments may be executed by programmable equipment, such as computers. Software or other sets of instructions that may be employed to cause programmable equipment to execute the processes may be stored in any storage device, such as, for example, a computer system (non-volatile) memory, an optical disk, magnetic tape, or magnetic disk. Furthermore, some of the processes may be programmed when the computer system is manufactured or via a computer-readable memory medium.

It can also be appreciated that certain process aspects described herein may be performed using instructions stored on a computer-readable memory medium or media that direct a computer or computer system to perform process steps. A computer-readable medium may include, for example, memory devices such as diskettes, compact discs of both read-only and read/write varieties, optical disk drives, and hard disk drives. A computer-readable medium may also include memory storage that may be physical, virtual, permanent, temporary, semi-permanent and/or semi-temporary.

A "computer," "computer system," "host," "engine," or "processor" may be, for example and without limitation, a processor, microcomputer, minicomputer, server, mainframe, laptop, personal data assistant (PDA), wireless e-mail device, cellular phone, pager, processor, fax machine, scanner, or any other programmable device configured to transmit and/or receive data over a network. Computer systems and computer-based devices disclosed herein may include memory for storing certain software applications used in obtaining, processing, and communicating information. It can be appreciated that such memory may be internal or external with respect to operation of the disclosed embodiments. The memory may also include any means for storing software, including a hard disk, an optical disk, floppy disk, ROM (read only memory), RAM (random access memory), PROM (programmable ROM), EEPROM (electrically erasable PROM) and/or other computer-readable memory media.

In various embodiments of the present invention, a single component may be replaced by multiple components, and multiple components may be replaced by a single component, to perform a given function or functions. Except where such substitution would not be operative to practice embodiments of the present invention, such substitution is within the scope of the present invention. Any of the servers described herein, for example, may be replaced by a "server farm" or other grouping of networked servers (e.g., a group of server blades) that are located and configured for cooperative functions. It can be appreciated that a server farm may serve to distribute workload between/among individual components of the farm and may expedite computing processes by harnessing the collective and cooperative power of multiple servers. Such server farms may employ load-balancing software that accomplishes tasks such as, for example, tracking demand for processing power from different machines, prioritizing and scheduling tasks based on network demand, and/or providing backup contingency in the event of component failure or reduction in operability.

What is claimed is:

1. A method of authenticating an individual in a transient population, the method comprising:

an unmanned vehicle:

receiving one of a geospatial and a relative location command from a remote control center;

moving to the location associated with the location command;

detecting at least one tracking device configured to transmit location data signals corresponding to the location of the at least one tracking device wherein the at least one tracking device is associated with a user; and

a network server in communication with the unmanned vehicle:

configuring a network architecture with a computer system to identify each of the tracking devices and receive location data signals regarding each of the tracking devices within a defined operating environment when they are in close proximity to one another, wherein the computer system is communicatively coupled to a database;

receiving the location data signals from the at least one tracking device wherein the network architecture delivers location data regarding the at least one tracking device to one or more servers;

determining, by the computer system, the location of the at least one tracking device and identifying the data associated with the user; and

configuring the network architecture to enable the one or more servers to project content specifically tailored to the user onto at least one presentation screen, wherein the content is rendered by the one or more tracking device, a user's mobile device or on one or more computing devices communicatively coupled to the mobile device or the at least one tracking device via one or more networks;

wherein an integrated user interface is configured to reflect certain content onto the at least one presentation screen when the mobile device is within a predetermined proximity of the operating environment; and

wherein the unmanned vehicle is remotely controlled or autonomous.

2. The method of claim **1**, wherein the method comprises the further step of delivering location data to one or more presentation screen.

3. The method of claim **2**, wherein the at least one tracking device is the user's mobile device or one or more computing devices communicatively coupled to the user's mobile device.

4. The method of claim **3**, wherein the mobile device is a device selected from the group consisting of unmanned vehicle, a laptop computer, a tablet computer, a mobile telephone, a personal digital assistant, a bracelet, and a smartcard.

5. The method of claim **1**, wherein the at least one tracking device comprises a first device that wirelessly connects to a second device selected from the group consisting of an unmanned vehicle, a laptop computer, a tablet computer, a mobile telephone, a personal digital assistant, a bracelet, and a smartcard.

6. The method of claim **5**, wherein the first device is an RFID enabled device and the second device is a mobile device.

7. The method of claim **1**, wherein the at least one tracking device comprises a mobile device that wirelessly connects to a second device, wherein the second device is a connective device configured to communicate with the network.

8. The method of claim **7**, wherein the connective device is equipped to communicate with a wireless network for proximity based communication and location detection of the mobile devices.

9. The method of claim **8**, wherein the network architecture is configured to enable a server to recognize the user has

entered an operating environment or track the location of the user in an operating environment.

10. The method of claim **9**, wherein the connective device comprises a digital media receiver equipped with one or more receivers and one or more transmitters to communicate with other devices.

11. The method of claim **1**, wherein the network architecture is configured with a server associated with a subscriber database that provides unique identification codes associated with the devices' associated users.

12. A system for authenticating an individual in a transient population, the system comprising:

an unmanned vehicle comprising:

a mobile platform;

a communication system carried by the mobile platform; and

a controller carried by the mobile platform, in communication with the communication system, and comprising a processor to execute instructions to configure the unmanned vehicle to:

receive one of a geospatial and a relative location command from a remote control center;

move to the location associated with the location command;

detect at least one tracking device configured to transmit location data signals corresponding to the location of the at least one tracking device wherein the at least one tracking device is associated with a user; and

a network server in communication with the unmanned vehicle to:

configure a network architecture with a computer system to identify each of the tracking devices and receive location data signals regarding each of the tracking devices within a defined operating environment when they are in close proximity to one another, wherein the computer system is communicatively coupled to a database;

receive the location data signals from the at least one tracking device wherein the network architecture delivers location data regarding the at least one tracking device to one or more servers;

determine, by the computer system, the location of the at least one tracking device and identifying the data associated with the user; and

configure the network architecture to enable the one or more servers to project content specifically tailored to the user onto at least one presentation screen, wherein the content is rendered by the one or more tracking device, a user's mobile device or on one or more computing devices communicatively coupled to the mobile device or the at least one tracking device via one or more networks;

wherein an integrated user interface is configured to reflect certain content onto the at least one presentation screen when the mobile device is within a predetermined proximity of the operating environment; and

wherein the unmanned vehicle is remotely controlled or autonomous.

13. The system of claim **12**, wherein the communication system of the unmanned vehicle delivers location data to one or more presentation screen.

14. The system of claim **13**, wherein the at least one tracking device is the user's mobile device or one or more computing devices communicatively coupled to the user's mobile device.

15. The system of claim **14**, wherein the mobile device is a device selected from the group consisting of unmanned vehicle, a laptop computer, a tablet computer, a mobile telephone, a personal digital assistant, a bracelet, and a smartcard.

16. The system of claim **12**, wherein the network architecture is configured to include one or more fail-safe detection and prevention processes.

17. The system of claim **12**, wherein the at least one tracking device comprises a first device that wirelessly connects to a second device selected from the group consisting of an unmanned vehicle, a laptop computer, a tablet computer, a mobile telephone, a personal digital assistant, a bracelet, and a smartcard.

18. The system of claim **17**, wherein the first device is an RFID enabled device and the second device is a mobile device.

19. The system of claim **12**, wherein the at least one tracking device comprises a mobile device that wirelessly connects to a second device, wherein the second device is a connective device configured to communicate with the network.

20. The system of claim **19**, wherein the connective device is equipped to communicate with a wireless network for proximity based communication and location detection of the mobile devices.

21. The system of claim **20**, wherein the mobile device is selected from the group consisting of a laptop computer, a tablet computer, a mobile telephone, a personal digital assistant, a bracelet, and a smartcard.

22. The system of claim **21**, wherein the network architecture is configured to enable a server to recognize the user has entered an operating environment or to track the location of the user in an operating environment.

23. The system of claim **12**, wherein the network architecture is configured with a server associated with a subscriber database that provides unique identification codes associated with the devices' associated users.

24. The system of claim **12**, wherein the network architecture is configured to enable a user to modify data presented on a presentation screen through a second mobile device.

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